

JUN 27 2008

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**AMENDMENTS TO THE DRAWINGS:**

The attached drawing sheets (each labeled "Replacement Sheet" within the margin header, as required) incorporate the following changes:

FIG. 10 had the "(2f)" reference numbers removed, and also an extraneous line within each of the three indented portions removed.

FIG. 11 had the "(2f)" reference number removed, and also an extraneous line within the indented portion removed.

FIG. 14 had the caulked portion under the tip of each of the three caulking tools corrected.

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### REMARKS

This paper is responsive to any paper(s) indicated above, and is responsive in any other manner indicated below.

### REQUEST FOR EXAMINER INTERVIEW BEFORE FURTHER ACTION

In the interest of expediting prosecution of the present application, Applicant respectfully requests that an Examiner interview be scheduled and conducted before a further action is issued with respect to the present application. The Examiner is respectfully requested to contact the attorney indicated on this paper at the local Washington, D.C. area telephone number of 703/312-6600 for the purpose of scheduling an examiner interview. The Examiner is thanked in advance for such considerations. Contact will also be attempted by the undersigned attorneys to schedule an Examiner Interview. In the event that the present papers, in and of themselves, are sufficient to place the application in condition for allowance, no Examiner interview would be necessary.

### DRAWING OBJECTIONS / DRAWING CHANGES

With regard to the "Drawings" section at pages 2 and 3 of the Office Action, submitted herewith are attached drawing sheets (each labeled "Replacement Sheet" within the margin header, as required) incorporating changes as indicated within the "AMENDMENTS TO THE DRAWINGS" section of this paper. Regarding other ones of the drawing objections, appropriate amendments have been made to Applicant's specification to address specific objections. As the following is believed to obviate all the listed concerns, reconsideration and withdrawal of the objection to the

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drawings are respectfully requested. Further, acknowledgment of receipt, and approval, of the drawing changes and Replacement Sheets, are respectfully requested.

Regarding the Office Action assertion (first two lines of last paragraph on page 2 of the 27 February 2008 Office Action) that "the top surface of the caulked portion in the axial groove in FIG. 11 should be dented. The bottom surface of the caulked portion in the axial groove has a projection but not the top surface and therefore has to be shown.", traversal is appropriate. More particularly, Applicant's FIGS. 15a-b caulking tool has no portion to create the allegedly-needed "dent". Regarding a "projection" extending into the axial groove, such may easily be accomplished through sufficient pressure with Applicant's FIG. 15a-b caulking tool, causing pressurized plastic deformation of the caulked portion into the axial groove without causing any corresponding dent in the top surface of the caulked portion. Reconsideration and withdrawal of such Office Action assertion, are respectfully requested.

#### **DISCLOSURE/SPECIFICATION AMENDMENT(S)**

The disclosure/specification has been objected to because of the Office Action concerns listed within the "Specification" section on page 4 of the Office Action. As the disclosure/specification has been carefully reviewed and has been amended where appropriate in order to address each of the Office Action listed concerns, reconsideration and withdrawal of the objection to the disclosure/specification are respectfully requested.

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### **PENDING CLAIMS**

Claims 1, 4-11 and 21-26 were pending, under consideration and subjected to examination in the Office Action. Appropriate claims have been amended, canceled and/or added (without prejudice or disclaimer) in order to adjust a clarity and/or focus of Applicant's claimed invention. That is, such changes are unrelated to any prior art or scope adjustment and are simply refocused claims in which Applicant is present interested. At entry of this paper, Claims 1, 4-11 and 21-30 will be pending for further examination in the Office Action. Based upon the foregoing, reconsideration and withdrawal of the above-referenced rejection are respectfully requested.

### **POSSIBLE DUPLICATE CLAIMS OBJECTION - TRAVERSED**

Applicant respectfully traverses the 37 possible CFR '1.75 objection of claims 4 and 25 as allegedly being improper duplicate claims. It is well established under U.S. patent law that even a small change in scope between claims is sufficient to avoid a 37 CFR '1.75 duplicate claims objection with respect to such scope-differing claims, i.e., major multi-million dollar legal cases are fought over a single word in a claim. Even MPEP 706.03(k) concerning "Duplicate Claims" itself states (in part), "...a mere difference in scope between claims has been held to be enough". Applicant respectfully notes that claims 4 and 25 are worded completely differently from each other, and definitely differ in scope. As the foregoing is believed to have addressed all '1.75 - duplicate claims concerns, preclusion of any '1.75 - duplicate claims objection is respectfully requested.

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### REJECTION UNDER 35 USC '103

The 35 USC '103 rejection of claims 1, 4-7, 9, 11 and 23-26 as being unpatentable over Chikaraishi (JP 11-248562) in view of Dent (U.S. Patent 3,652,111); the rejection of claim 8 as being unpatentable over Chikaraishi (JP 11-248562) in view of Dent (U.S. Patent 3,652,111) and further in view of Fujioka et al. (U.S. patent 4,716,756); the rejection of claims 10 and 22 as being unpatentable over Chikaraishi (JP 11-248562) in view of Dent (U.S. Patent 3,652,111) and further in view of Edgemond, Jr. (U.S. Patent 3,642,311), is respectfully traversed. However, such rejections have been rendered obsolete by the present clarifying amendments to Applicant's claims, and accordingly, traversal arguments are not appropriate at this time. However, Applicant respectfully submits the following to preclude renewal of any such rejections against Applicant's clarified claims.

All descriptions of Applicant's disclosed and claimed invention, and all descriptions and rebuttal arguments regarding the applied prior art, as previously submitted by Applicant in any form, are repeated and incorporated hereat by reference. Further, all Office Action statements regarding the prior art rejections are respectfully traversed. As additional arguments, Applicant respectfully submits the following.

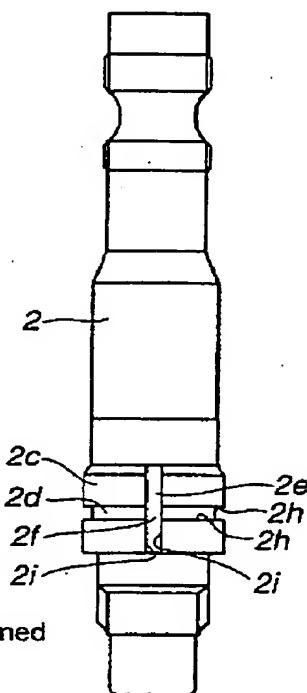
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Applicant's disclosed and claimed invention is directed toward providing structural arrangements (e.g., for power steering arrangements) which are easier/cheaper to manufacture, and which provide greater reliability. One important feature of Applicant's disclosed and claimed invention, is the provision of intersecting axial and circumferential grooves. More particularly, Applicant's FIG. 8 (reproduced herewith for convenience) illustrates an axial groove 2e and a circumferential groove 2d. Another important feature of Applicant's disclosed and claimed invention, is that one of the grooves (e.g., the axial groove 2e) extends deeper into the shaft 2, than the other of the grooves (e.g., the circumferential groove 2d).

Another important feature of Applicant's disclosed and claimed invention, is that a cylindrical member fitting over the shaft and grooves, is then caulked at the intersection of the grooves. Because one of the grooves is deeper than the other, a projection portion is forced (e.g., by caulking pressure) beyond the shallower groove (e.g., the circumferential groove 2d) and

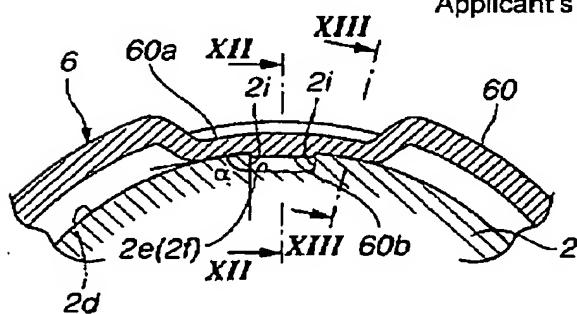
**FIG.8**



**FIG.11** into the deeper groove (e.g., the axial groove 2e).

Applicant's FIG. 11 shows an example caulked

projection extending beyond the circumferential groove 2d into the deeper axial groove 2e.



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Applicant's arrangement is advantageous in a number of regards. First, portions of the caulking extending into, and engaged with, the circumferential groove **2d**, reliably prevent the cylindrical member from moving in an axial direction (i.e., up or down the shaft **2**). Second, the projection portion of the caulking extending further into, and engaged with, the axial groove **2e**, reliably prevent the cylindrical member from rotating in a circumferential direction (i.e., rotating around the shaft **2**). Thus, axial and circumferential securing can easily and quickly be accomplished through simple caulking applied at the intersection of the grooves (i.e., "intersectional caulking"). As there is no need to provide further caulking at other portions for securing, manufacturing of Applicant's structure can be accomplished quickly. As a third advantage, such intersectional caulking can easily be accomplished with Applicant's simplistic FIGS. 15a-b caulking tool.

In terms of distinguishing claim features/limitations, at minimum, Applicant's independent claim 1 (taken as an example) recites (in relevant part): "A structure, comprising: a first shaft member, the first shaft member being formed out of a first material, the first shaft member having an outer periphery formed with an axial groove and a circumferential groove, each of said grooves having a cross section having opposed faces substantially parallel to each other, and wherein the axial groove is deeper in depth than the circumferential groove; ...a cylindrical member fitted to the outer periphery of the first shaft member, ...a caulked portion provided to the cylindrical member partly at an intersection of the axial groove and the circumferential groove, the caulked portion having a continuous and deformed inner surface in press contact with the opposed faces of the axial groove

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and the circumferential groove at the intersection, and the caulked portion at the intersection having a caulked protrusion portion extending beyond a depth of said circumferential groove, and engaged exclusively with the deeper said axial groove. Applicant's dependent claim 29 and independent claim 30 have similar or analogous features/limitations.

Turning now to rebuttal of the previously-applied art, Chikaraishi appears to disclose intersecting grooves 11, 12, but is deficient in a number of regards. First, Office Action comments (page 6, first full paragraph, first line) admit that "Chikaraishi fails to disclose the axial groove ... being greater in depth than the circumferential groove...". Next, with respect to Chikaraishi's axial grooves 11, it appears that the projections 13 (which fit into the axial grooves 11) are preformed on Chikaraishi's cylinder member 10 BEFORE the cylinder member 10 is even mounted onto Chikaraishi's member 3, i.e., there is no caulking of the projections 13 while mounted to the axial grooves 11 (see Chikaraishi's paragraph [0018] for example). Still further, even assuming for argument purposes that Chikaraishi applies "caulking" with respect to an end of Chikaraishi's member 10 so as to secure it to circumferential groove 12, Chikaraishi nowhere discusses applying such caulking also to Chikaraishi's axial groove 11. Accordingly, there is total uncertainty as to whether Chikaraishi's groove 12 caulking affects Chikaraishi's axial groove 11. More particularly, there is no disclosure within Chikaraishi which discloses that Chikaraishi's circumferential groove 12 caulking causes any caulking portion to extend beyond the circumferential groove 12 and into the axial groove 11. In short,

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Chikaraishi fails to disclose or suggest the above-emphasized features/limitations of Applicant's claims.

Turning next to Dent, Dent does nothing to cure the major deficiencies mentioned above with respect to the primary reference. Further, Office Action comments (page 6, first full paragraph, second line) allege that Dent teaches (in Figure 3, an axial groove 64 being greater in depth than a circumferential groove 36 (See Dent; col. 4, lines 35-38)." Traversal is appropriate, because Dent's col. 4, lines 35-38 have been reviewed by the Undersigned, and such Dent text nowhere says that groove 64 is deeper in depth than the groove 36. Further, no other text of Dent appears to provide such disclosure. Even if Dent did disclose groove 64 being deeper than groove 36, it is respectfully noted that Yamanaka et al. appears to be in a differing art (e.g., swage joining of a metallic tube to an insert) than Chikaraishi (power steering structure). In short, a person skilled in the art dealing with the art in Chikaraishi would not have looked to Dent as providing relevant teachings. In short, it appears that the present citation of Dent derives from an improper attempt to hindsight reconstruct Applicant's claimed invention, using seemingly unrelated art disclosures.

In addition to the above remarks, the following additional remarks are supplied from Applicant's foreign representative.

Regarding Claim 1, Applicant asserts the following counter-arguments. The feature "a caulked portion provided to the cylindrical member partly at an intersection of the axial -groove and the circumferential groove" is recited in Claim 1. Applicant respectfully submits that it is unjustified as a literal interpretation, to argue that the caulked portion of each of Chikaraishi and Dent is provided partly at the intersection

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of the axial groove and the circumferential groove. Both of Chikaraishi and Dent do not disclose a technique for caulking only area around the intersection (i.e., caulking with a focus on the intersection), but Chikaraishi and Dent disclose the technique for caulking all peripheral surface (entire circumference) of the cylindrical member. If the area around the intersection in Chikaraishi or Dent was partly caulked, the cylindrical member would not be stabilized in the circumferential direction or in the axial direction.

In the invention according to Claim 1, the axial groove is made greater in depth than the circumferential groove and the opposed faces of each of the axial groove and circumferential groove are made to be substantially parallel to each other in order to achieve this structure (caulking provided partly at the intersection). Such a solution is not disclosed anywhere in Chikaraishi and Dent. As the matter of course, that solution is not a general knowledge. Note that the structure of caulking partly at the intersection as recited in Claim 1 in the coupling technical field for torque-sensing members has the advantages (i.e., object) such as a strong coupling under the change of atmospheric temperature and a prevention of plastic deformation of cylindrical member as mentioned in the Description of the present Application.

Regarding Claim 25, the feature "the caulked portion is provided to the cylindrical member, only at the intersection of the axial groove and the circumferential groove" is recited. Therefore, Applicant respectfully submits that the above-mentioned counter arguments for Claim 1 also apply for claim 25.

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Regarding Claim 21, the present clarifying amendment makes clear a difference from a "clearance" stated by the examiner, since the examiner states that the chamfer of a left end portion of insert 10 of FIG. 8 in Dent is the "clearance". Further, amendment of Claim 24 also redefines the "clearance".

Regarding Claim 26, Applicant submits the following counter-argument. The feature "a plurality of caulked portions are provided" and the feature "the clearance exists between the caulked portions" are not disclosed or suggested in Chikaraishi and Dent.

As a result of all of the foregoing, it is respectfully submitted that the applied art (taken alone and in the Office Action combinations) would not support a '103 obviousness-type rejection of Applicant's claims. Accordingly, reconsideration and withdrawal of such '103 rejection, and express written allowance of all of the '103 rejected claims, are respectfully requested.

#### **EXAMINER INVITED TO TELEPHONE**

The Examiner is herein invited to telephone the undersigned attorneys at the local Washington, D.C. area telephone number of 703/312-6600 for discussing any Examiner's Amendments or other suggested actions for accelerating prosecution and moving the present application to allowance.

#### **RESERVATION OF RIGHTS**

It is respectfully submitted that any and all claim amendments and/or cancellations submitted within this paper and throughout prosecution of the present application are without prejudice or disclaimer. That is, any above statements, or

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any present amendment or cancellation of claims (all made without prejudice or disclaimer), should not be taken as an indication or admission that any objection/rejection was valid, or as a disclaimer of any scope or subject matter. Applicant respectfully reserves all rights to file subsequent related application(s) (including reissue applications) directed to any/all previously claimed limitations/features which have been subsequently amended or cancelled, or to any/all limitations/features not yet claimed, i.e., Applicant continues (indefinitely) to maintain no intention or desire to dedicate or surrender any limitations/features of subject matter of the present application to the public.

### **CONCLUSION**

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims listed above as presently being under consideration in the application are now in condition for allowance.

To the extent necessary, Applicant petitions for an extension of time under 37 CFR '1.136. Authorization is herein given to charge any shortage in the fees, including extension of time fees and excess claim fees, to Deposit Account No. 01-2135 (Case No. 1478.48304X00) and please credit any excess fees to such deposit account.

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Based upon all of the foregoing, allowance of all presently-pending claims is respectfully requested.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

*Paul J. Skwierawski*  
/Paul J. Skwierawski/  
Paul J. Skwierawski  
Registration No. 32,173

PJS/slk  
(703) 312-6600